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South Cape, and then steamed up Storfjord and anchored on the 17th near Geneva Bay. From a hill here they could see the sea to the eastward was clear of block ice, although icebergs could be seen floating about. From this point Wiches Land could be distinctly seen. Hinlopen Straits also seemed to be free of ice. On the 20th they anchored at the entrance of Walter Thymen's Straits—where they took in ballast—which were also clear of ice. On the 22d they were off Wales Point, and from there they sailed with a fair wind to Hammerfest, in Norway, which they reached on the 25th of September.

Careful observations were taken of the temperature and other meteorological tests made. The dredgings secured some very interesting specimens which have been preserved, and a large number of photographs of the places visited were obtained.

Mr. Leigh Smith's voyage is the most successful and important *summer* voyage that has ever been made in the Arctic Regions.

MICROSCOPY.¹

PATHOLOGY OF ACUTE DELIRIUM. — Dr. Theodore Deecke, Pathologist to the New York State Lunatic Asylum at Utica, publishes in the *Am. Journ. of Insanity*, a paper on some changes in the ganglion cells of the gray cortex of the brain in acute delirium and their relation to those in acute insanity and in dementia. He disputes the opinion of some authors that the phenomena of delirium, as well as acute insanity itself, are merely functional, and, while associated with grave disturbances of nutrition, and perhaps material alterations in the vascular system, are not connected with any visible alterations in the structure of the nervous elements themselves. The first change noticed in the ganglion cells of the gray cortex of the brain, is the appearance over the body of the cell of a loose, granular covering, of a fatty nature, which must be attributed to a defective focal combustion or oxidation, brought about by an insufficient supply, to the tissues involved, of arterial or oxygenated blood. These conditions occur so frequently in cases of acute delirium, and acute insanity, that there can be no doubt of their pathological character. In more advanced stages of the affection, the structure of the cells becomes involved, and finally almost entirely destroyed, as described at length in the paper itself. The author's method of studying the objects in situ, with as little change as possible from their condition in life, is thus described: "The best results are obtained from the immediate examination of the fresh brain tissue. With a sharp knife, kept wet with water, to which a small quantity of glycerine has been added, or even directly in this liquid, microscopic sections can be made sufficiently thin and transparent to permit the use of all the higher magnifying powers applicable in histological investigations. The liquid in which the sections are

¹ This department is edited by Dr. R. H. Ward, Troy, N. Y.

mounted is diluted glycerine; and no pressure is allowed to act upon the specimens other than that which the thin cover-glass exerts when of the embedding fluid so much is removed by blotting paper that it just fills out the empty space between the slide and the cover. Thus the margin only of the specimen comes in contact with the fluid, while its surfaces are spread out smoothly on the glass surfaces. In such preparations the vascular arrangement, the distribution of the nuclei of the neuroglia, and the ganglion cells and nerve fibers in their natural appearance and position, are brought to view with great distinctness. The long processes of the pyramidal cells, which extend toward the periphery of the convolutions, may be followed up to three and four times the diameter of the field of vision of a one-fifth objective. The condition and position of the nuclei and nucleoli of the cells can be clearly pointed out, as also the roots at the base of the cells, and their origin. All this, however, will not visibly be altered when the fresh sections are soaked for staining in a carmine solution, to which a little glycerine has been added. They imbibe a small amount only of the coloring material, yet some details of structure may become thus more distinctly outlined. I have, therefore, most frequently in successive sections employed alternately both methods."

FINE RULINGS.—In speaking of the modern microscopic rulings on glass, which have been regarded with so great and deserved an interest by all physicists, one cannot be too careful to discriminate fully between those that are known to be ruled and those whose ruling has been attempted but not yet demonstrated. It is self-evident that in attempting to rule lines 5,000,000 to the inch a band may be produced which does not consist of lines of that degree of fineness. There is no difficulty in arranging a machine to draw lines, theoretically, of any required degree of closeness. The register of a ruling engine can be so arranged and sub-divided as to indicate a spacing at the ruling point of one ten-millionth of an inch as easily almost as of one-tenth of an inch. But it may well be doubted whether such fine motion is actually imparted to the diamond point, or could be recorded upon the surface of the glass. It is becoming common to hear the higher bands of Mr. Fasoldt, claiming up to ten million lines to the inch, spoken of as actually ruled and only waiting an objective to reveal them. Such an error, made inadvertently by persons who would avoid it by a little reflection, as made in the last number of one of the most popular microscopical journals, gives a lasting as well as erroneous impression to non-scientific persons. Mr. Fasoldt's rulings are certainly remarkable and the lower bands are ruled with great success; but how far up the scale they continue to be ruled as distinct lines is certainly at this time an undecided question.

YE MICROSCOPE OF YE OLDEN TIME.—Under this title Professor E. F. Moody delivered an interesting lecture before the Microscopical Society of Camden, which has just been published in pamphlet form by the society. Incited by an engraving and description of John Marshall's new double microscope in the *Lexicon Technicum*, published in 1704, which presents many of the features of the instruments and their methods of arrangement and use at the present day, he reviews the history of the microscope and its discoveries in England during the last of the 17th and the early part of the 18th century, chiefly by means of extracts from the *Philosophical Transactions* of the Royal Society. The author is greatly impressed with the keenness of observation, scientific skill and rare deductive power which is displayed in the microscopical studies of those early days, and he gives them in the quaint and thoughtful words of their original publication. After the death of Lewenhoeck, and the acquisition by the Royal Society of his valuable legacy, consisting of a cabinet containing his microscopes and their accompanying objects, this brilliant age of microscopy came to an end, and the *Transactions* show nothing of corresponding interest until the sudden advent of the age of Wollaston near the end of the 18th century.

ABNORMAL ENTOZOA IN MAN.—Rev. Samuel Lockwood's paper on this subject, read before the New Jersey State Microscopical Society, is full of curious facts in regard to the rather unfamiliar and somewhat unprepossessing theme. It is published in full in the January number of the *American Journal of Microscopy*.

EXCHANGES.—Parties desire to correspond with persons who can furnish new material containing *Polycistina*; also *Poduræ* or spring-tails of various species. Address the Editor of this Department of the NATURALIST.

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SCIENTIFIC NEWS.

— The first number of *Papilio*, organ of the New York Entomological Club and devoted exclusively to Lepidoptera has made its appearance, and a very neat and pleasing one it is. It will be issued about the fifteenth of each month, the subscription price being \$2 per annum. The publication committee are Messrs. A. R. Grote, Henry Edwards and T. L. Mead; subscriptions and communications should be addressed to Mr. Henry Edwards, 185 East 116th street, New York City. We hope that the journal will give stimulus to our knowledge of the metamorphoses of the Lepidoptera, which has been somewhat neglected; the paper of Mr. Coquillet on the early stages of some moths is, we hope, an earnest of what may follow. A number of new species of moths are described by Messrs. Grote, Neumoegen and Edwards; and the number is illustrated by a colored plate of *Edwardsia brillians* Neumoegen.